Memorandum

U.S. Department
of Transportation
Federal Transit
Administration

Subject: ACTION: Approval of Entry into Preliminary Engineering:
High-Capacity Transit Corridor Project in Honolulu, HI

Date:

From: The New Starts Team for Honolulu
HQ and TRO-09

Reply to
Attn. of:

To: Leslie T. Rogers
Regional Administrator, TRO-09

Susan Borinsky
Associate Administrator for Planning and Environment, TPE-1

Susan Schruth
Associate Administrator for Program Management, TPM-1

Action Request

The Department of Transportation Services of the City and County of Honolulu (the City) has submitted a request for approval to advance the Honolulu High-Capacity Transit Corridor Project (the project) into preliminary engineering. This memorandum seeks approval of that request.

The New Starts Team for the Honolulu project recommends approval of the request because the project has met all requirements for entry into preliminary engineering: the project has received a *Medium* rating against the New Starts criteria; the project sponsor has demonstrated the technical capacity to undertake the project; and the project has been adopted into the Oahu Metropolitan Planning Organization's financially constrained long-range transportation plan.

The City submitted an initial PE request on May 5, 2009. On August 4, FTA directed the City to revise the cost estimate and financial plan submitted by adding $116 million per the recommendation from the project management oversight contractor (PMOC). The City submitted a revised plan on August 12 at which time FTA determined the application to be complete.

Project Description

The project is an approximately 20-mile double-track rail line serving the south shore of Oahu from a western terminus in Kapolei, past Pearl Harbor and Honolulu International Airport, through downtown Honolulu to an eastern terminus at Ala Moana Center. The project includes 21 stations; four park-and ride facilities with 4,100 total spaces; approximately 76 rail vehicles initially (with nine more vehicles purchased in 2024/25); and a facility for vehicle storage, vehicle maintenance, and system operations. The electrified (third rail) line will be almost entirely on elevated structure in existing public rights of

way – primarily arterial streets. Rail service will extend over 20 hours each day with automated trains running every three minutes in the weekday peak periods and six minutes during most off-peak hours.

The total expected FFGA project cost including finance charges is $5,348 million in YOE dollars. The City is seeking $1,550 million in Section 5309 New Starts funds (29 percent)

Project Purpose

The project corridor is on the south shore of Oahu and includes, from west to east, the rapidly growing areas of Kapolei/Ewa, the Pearl Harbor/HNL international airport, downtown Honolulu, Ala Moana Center, the University of Hawaii (UH) at Mānoa, and Waikīkī. The corridor is geographically constrained by the ocean to the south and two mountain ranges to the north. Pearl Harbor reaches well inland from the ocean and pinches the already-narrow corridor near its mid-point. Currently, there are 550,000 residents and 400,000 jobs in the corridor. Because most of these jobs are located in the urban core extending from Pearl Harbor on the west to Waikīkī and UH on the east, large numbers of workers commute into the core from the western parts of the corridor and from Central Oahu – located between the two mountain ranges to the north.

Highway travel is carried by the H-1 freeway that extends through the length of the corridor. H-1 carries the large majority of the longer automobile trips in the corridor because of the general absence of parallel highways and major arterials. Near Pearl Harbor, H-1 traffic is joined by traffic from H-2 – a freeway extending north into Central Oahu. Consequently, H-1 is heavily congested through much of the day, seven days per week, despite the presence of HOV lanes in the western-most segment of the corridor and a reversible lane in the vicinity of Pearl Harbor. Within the urban core, street capacity is similarly limited by the scarcity of continuous arterials stretching among the airport, downtown Honolulu, Waikiki, and the UH campus.

The Honolulu bus system provides high quality service throughout the corridor and carries 185,000 linked trips per average weekday. Per-capita ridership is among the top 20 in the country, reflecting heavy traffic congestion, high parking costs in the urban core, and aggressive efforts by the City to improve service with express buses on HOV lanes, several bus rapid transit routes, and relatively low fares. Service quality suffers substantially from mixed-traffic operations, however, and increasing traffic congestion degrades schedule reliability, increases operating costs, and exacerbates the bus-capacity limitations on the highest-ridership bus routes. Average door-to-door travel time for transit riders from Western and Central Oahu to the urban core is currently 95 minutes.

By 2030, the corridor is projected to have 760,000 residents and 525,000 jobs, capturing most of the population growth and effectively all of the employment growth anticipated for Oahu for the next two decades. Some 40 percent of growth within the corridor is projected for Kapolei/Ewa where, by City policy, a secondary urban center is beginning to emerge on formerly agricultural land. Increasing traffic volumes are projected to make highway congestion marginally worse despite $3 billion worth of highway improvements in the corridor. Demographic growth is expected to increase bus ridership to 225,000 daily linked trips but the performance of the bus system is expected to continue to degrade because of increasing congestion – with even longer travel times, less reliable service headways, increasing capacity problems, and still-higher operating costs to maintain the same headways. Average transit travel time from Western and Central Oahu to the urban core is expected to increase to 99 minutes.

The baseline alternative adds more express bus routes, increases the frequency of limited-stop routes, and takes advantage of a new HOV facility connecting existing HOV lanes in the corridor to the west edge of downtown Honolulu. The baseline also increases the number of community circulator routes serving the rapidly growing western parts of the corridor. As a result, ridership is projected to increase to 234,000 linked trips per day, average transit travel time from Western and Central Oahu to the urban core is estimated to decrease to 94 minutes, and bus riders are predicted to save 3.2 million hours of travel time annually. These marginal improvements reflect two fundamental limitations on low-cost attempts to improve service: first, the existing bus system already includes most of the useful low-cost improvements that are possible in the corridor; and second, most bus services in the corridor will continue to operate in heavily congested mixed traffic.

The project introduces a fully grade-separate guideway for trains providing frequent, much-higher-speed transit service. The rail line is projected to carry 116,000 daily trips and increase total transit ridership to 283,000 daily linked trips. The project will reduce average transit travel times from Western and Central Oahu to the urban core to 65 minutes – 29 minutes faster than the baseline alternative – and will save transit riders a total of 21 million hours per year by 2030. The City also intends to use the rail stations in Western Oahu as focal points to shape development of the second urban center on Oahu.

In summary, the City sees the proposed rail project as a way to make significant improvements in transit service that cannot be accomplished with buses on congested streets and highways, to attract large numbers of new transit riders for both (1) longer-distance travel from Western and Central Oahu to the urban core and (2) shorter-distance travel within the urban core, and to help shape the development of the emerging urban center in West Oahu.

Planning History

The project has emerged from a planning process that conforms to FTA New Starts requirements and reflects the ongoing tensions among the project-advocate role of the City administration, the narrowly divided City Council, and the divergent views of the public. The documents, decisions, and other milestones that comprise the project's history are the legacy of those tensions:

- December 7, 2005: FTA publishes a Notice of Intent (NOI) in the Federal Register for a combined alternatives analysis and Draft Environmental Impact Statement (AA/DEIS) considering major highway and transit options for the High Capacity Transit Corridor.
- November 1, 2006: The City completes the alternatives analysis having decided, in collaboration with FTA, to defer the Draft EIS in deference to the local schedule for selection of a locally preferred alternative.
- December 22, 2006: The City selects an LPA that is "fixed guideway transit" with a length of approximately 34 miles extending from West Oahu, along Salt Lake Boulevard or through Honolulu International Airport, through downtown, and branching to two eastern termini in Waikīkī and on the Mānoa campus of the University of Hawaii.
- February 27, 2007: The City identifies a 20-mile "first project" within the LPA, extending East Kapolei on the west, via Salt Lake Boulevard, to Ala Moana Center just east of downtown.
- March 15, 2007: FTA publishes in the Federal Register a Notice of Intent (NOI) to undertake an EIS for the "first project," including alignment options on Salt Lake Boulevard and through Honolulu International Airport.

- May 4, 2007: The Oahu Metropolitan Planning Organization amends the Oahu Regional Transportation Plan to include fixed guideway transit from East Kapolei to Ala Moana Center.
- April 17, 2008: The City chooses steel wheel on steel rail as the transit technology.
- November 21, 2008: The Draft EIS is published.
- February 11, 2009: The City chooses the airport alignment option.
- May 5, 2009: The City submits an initial request to FTA to advance the project into PE.
- August 12, 2009: With receipt of the revised financial plan, FTA deems the PE application complete.

Two other milestones were important to the development of the proposed rail project. In January 2007, the City began to accrue tax revenues dedicated to the project through legislative actions taken in 2006 by both the State and the City. In November 2008, Honolulu voters passed a referendum question on whether or not the City should proceed to implement a rail project.

National Environmental Policy Act (NEPA) Schedule

The NOI was published in March 2007. The Draft EIS was published on November 21, 2008. In July 2009, the City submitted an administrative draft of the Final EIS to FTA. FTA transmitted an initial set of comments to the City on the administrative draft, which the City is currently addressing. The City's schedule calls for publication of the Final EIS very soon after approval of the project into PE and receipt of a Record of Decision in November 2009.

However, this ambitious schedule now appears to be unlikely because of protracted meetings on historic and cultural issues. In an unusual step, the Advisory Council for Historic Preservation has weighed in on the development of a Programmatic Agreement (PA) that needs to be finalized prior to the release of the FEIS. Further, since the Department of Transportation Services for the City and County of Honolulu does not have the necessary authority to bind the City to commitments identified in the PA, the City administration will need to go back to the City Council for this authority. FTA does not expect to issue the FEIS until late fall at the earliest.

Project Cost and Capital Funding

The City estimates that the project will cost $5.35 billion (YOE) with category-specific costs as follows:

Standard Cost Category	Category Description	Estimated Capital Cost ($ millions, YOE)
10	Guideway and Trackwork	$1,667.8
20	Stations, Stops, Terminals	$389.2
30	Support Facilities	$138.5
40	Site work/Special Conditions	$895.5
50	Systems	$311.2
60	ROW, Land, Improvements	$128.6
70	Vehicles	$398.8
80	Professional Services	$933.6
90	Contingency	$184.2
100	Finance Charges	$290.3
	Total	***$5,347.7***

The project sponsor is seeking $1.55 billion (YOE) in New Starts funds (29 percent). The two non-New-Starts sources of capital funds are a 15-year (2007 through 2022) dedicated increment in the general excise tax on Oahu ($3.79 billion including the current cash balance and interest) and FTA Section 5307 formula funds ($305 million).

However, in late August 2009, the City opened bids for construction of elements of the westernmost six miles of the project. While contract negotiations continue, initial reports from the City are that the bids are lower than their engineer's estimates by 10 to 25 percent. The City had anticipated that the weak economy would produce lower-than-estimated bids, similar to those observed for public works projects elsewhere. As a result, the City may revise the full-project cost estimate and the financial plan soon after PE approval.

Assessment of Project Scope, Schedule, Cost, and Technical Capacity

FTA assigned two Project Management Oversight Contractors (PMOCs) to review the Honolulu project: one focused on the project scope, schedule, and cost; and the second focused on the readiness of the City to undertake PE.

In August 2008, FTA assigned Jacobs Engineering to review the project delivery method, scope, schedule, cost and schedule contingencies, and cost estimate, and to assess the project cost and schedule risks in anticipation of FTA's need for this information in the New Starts evaluation and rating of the project to support the decision on entry to PE. This review also included several iterations of PMOC comments, responses from the City, and revisions of both the PMOC comments and the cost estimate. Jacobs completed the cost review in July 2009. Specific comments from the review include:

Project Scope

- Identify any third party agreements necessary for project completion, including utility agreements with private and public owners and the military;
- Resolve the issue of proximity of the guideway to runways 22R/4L and 22L/4R at the Honolulu International Airport with the Hawaii Department of Transportation and the Federal Aviation Administration;
- Fully develop vehicle basis of design and functional sizing;
- Determine rail fleet size requirement;
- Fully develop scope for the administration building and operations control center;
- Determine the final location of the maintenance and storage facility;
- Finalize a contracting packaging plan which includes a source selection plan(s) and contract specific work plans;
- Develop strategies to streamline the City's process to award contracts and to enter into grant agreements, especially as applicable to FTA grants;
- Develop a preliminary operation plan; and
- Ensure the service velocity does not erode over the next course of design changes.

Project Schedule

- Provide a baseline of the Master Project Schedule (MPS) early in PE which will be used for monthly progress updates and tracking schedule variances;
- Address the utilization manpower and equipment resource loading and budget and cost loading;
- Include critical activities in the MPS: utility activities, real estate acquisitions, system integration, starting and testing, operational commissioning and training, vehicle procurement, major construction material procurements, FTA review and comment, detail activities for early construction packages;
- Develop a right-of-way schedule; and
- Modify the Work Breakdown Structure to cross over with the project budget and cost breakdown structure.

Project Cost

- Develop a detailed bottoms-up-style project cost estimate to Standard Cost Category format. The estimate should be detailed sufficiently to determine distributions of materials, labor, equipment and general conditions elements at a minimum. The soft cost estimates should be based on staffing plans, force account plans, contracts, and so forth rather than solely on percentages. The estimate should eliminate parametric-style values, cost estimating relationships, and lump sums as much as possible during PE;
- Escalate the cost estimate in accordance with the MPS; and
- Provide justification and backup documents to support the quantification and assumptions for the "soft costs" and related general conditions of the project.

The Jacobs review concluded that the cost estimate would be acceptable conditioned on the City's addition of $116 million to the estimate, bringing the total cost up to $5.35 billion – primarily to cover a higher escalation rate anticipated by the PMOC than had been assumed by the City. Final adjustments recommended by the PMOC for individual line items in the cost estimate were minor. The Jacobs review of the project schedule concluded that the City should add five months to the schedule, moving the projected date of revenue operation for the full project from the City's planned date of March 2019 to the PMOC's estimated date of August 2019. The City made these adjustments.

In March 2007, in anticipation of a PE request from the City later that year, FTA assigned Booz Allen Hamilton (BAH) as the PMOC for the Honolulu project. BAH has reviewed the several iterations of the City's Project Management Plan (PMP) beginning with its initial draft in June 2007. Continuing local decision-making and consequent changes to the project caused the City to defer its request for entry into PE. Consequently, the PMOC review effort eventually included several iterations of PMOC comments, responses from the City, and revisions to the PMP. BAH completed its review of the final March 2009 PMP in July 2009. In addition, the PMOC also performed a detailed review of the City's technical capacity and capability and completed its review in July 2009. Specific review comments by BAH include:

Technical Capacity

- Update the Project Management Plan to bring it into full conformance with FTA requirements, and implement the configuration management and change control mechanism;

- Develop detailed staffing plans for all remaining phases of the project to ensure adequate technical capacity. The plans should include the dates by which the City will fill each key position. All key City management positions should be filled during PE;
- Work with the State of Hawaii to establish a State Safety Oversight Agency office to oversee the project;
- Submit a fully developed Rail Fleet Management Plan;
- Have quantifiable metrics for measuring the real status of work, both cost and schedule of all professional service contracts, and any inter-local agreements for participatory services;
- Develop a Contingency Management Plan which will indentify the specific risks, and implement the anticipated mitigation measures;
- Develop an Environmental Mitigation Plan that identifies required environmental mitigation actions and the party responsible for the mitigation, and that will eventually become the basis for quarterly mitigation monitoring and quarterly mitigation reports; and
- Update and implement the Real Estate and Acquisition Plan, the Bus Fleet Management Plan, the Safety and Security Management Plan, and the Quality Management Plan as the project progresses.

The BAH review of the City's technical capacity and capability concluded that the City has demonstrated its technical capacity and capability to effectively manage the PE phase of project development.

New Starts Rating

The project earns an overall project rating of *Medium* against the New Starts criteria. This overall rating is based on a *Medium* rating for project justification and a *Medium* rating for local financial commitment. Detailed component ratings are:

Project Justification			Local Financial Commitment	
Mobility	Med-High		Capital Funding Plan	Medium
Land Use	Medium		O&M Funding Plan	Medium
Economic Development	Med-High		Non-New Starts Share	High
Operating Efficiency	Medium			
Environment	Medium			
Cost Effectiveness	Medium			
Overall	**Medium**		**Overall**	**Medium**

The cost-effectiveness index is $16.24 per hour of travel time savings.

Other Issues and Concerns

The City is highly focused on a groundbreaking before the end of calendar year 2009 to fulfill early promises on project schedule and to deter the State legislature (that convenes in January) from diverting funds from the rail-dedicated tax revenue stream to meet shortfalls in the State budget. To achieve this milestone objective, the City anticipates circulation of the FEIS shortly after PE approval and receipt of a Record of Decision (ROD) shortly after the FEIS circulation period concludes. With environmental clearance of the project, the City hopes to receive approval from FTA through a Letter of No Prejudice

to break ground on the westernmost 6-mile segment sometime in December. This schedule appears unlikely due to the delay of the FEIS for the reasons enumerated above in the NEPA section of this document.

Finally, while the City already has in place a dedicated funding source, project costs have reached a point where they exceed the projected capacity of that source. Further, collections have under-run projections made before the current economic downturn. The financial plan calls for the use of FTA Section 5307 formula funds for nearly a decade to cover remaining capital costs. A look-ahead by FTA's financial contractor suggests that these difficulties may cause the financial plan to fail the financial stress tests that will be applied when the City requests entry into final design. Consequently, financial issues may pose difficulties sufficient to put at risk the City's anticipated initiation of final design in early 2010. An early warning of this risk has been included in the PE approval letter.

Conclusion

The New Starts Team has evaluated the Honolulu High-Capacity Transit Corridor Project against the New Starts PE readiness criteria and has concluded that all requirements have been met. The team requests concurrence on its recommendation to approve the project into PE. The PE approval letter (attached) advises the City and County of Honolulu of conditions for advancing the project through PE and into final design.

Attachments: PE approval letter
10-day congressional notification
PMOC reports (2)

Concur: _____ 10/7/09
for Leslie T. Rogers
Regional Administrator
Date

Concur: _____
Susan Borinsky
Associate Administrator for Planning and Environment
Date

Concur: _____
Susan E. Schruth
Associate Administrator for Program Management
Date